

# LIEBERT® NX™ 3-PHASE UPS: 40-120kVA, 60Hz, 480VAC - SITE PLANNING DATA

The Liebert NX is a true on-line, double conversion, three-phase UPS system that delivers complete, centralized power protection for mission-critical systems.



Designed to meet the high availability power needs of a wide variety of IT applications, the UPS combines a rack form factor, advanced operating features and low cost of ownership.

- Increases growth flexibility with Softscale™ technology, plus the ability to parallel modules for increased capacity and redundancy.
- Achieves higher availability by reducing the number of UPS units required to power your data center.
- Reduces total cost of ownership through the use of longer life batteries and simplified preventive maintenance.



## General Specifications

INPUT	
<b>Voltage</b>	480VAC, 60Hz 3-phase, 3-wire plus ground
<b>Voltage Range without derating</b>	+15%, -25%
<b>Frequency Range</b>	57-63Hz
<b>Current Distortion</b>	3% maximum reflected THD at full load
<b>Current Limit</b>	140% of full load input current
<b>Current Walk-In</b>	20 seconds to full load Programmable, 0 to 30 seconds
<b>Power Factor</b>	>0.99 lagging at full load >0.98 lagging at half load
<b>Surge Protection</b>	Sustains input surges without damage, per criteria listed in IEC 61000-4-5
ENVIRONMENTAL	
<b>Operating Temperature</b>	<b>UPS:</b> 32° to 104°F (0-40°C) <b>Battery:</b> 68° to 86°F (20-30°C)
<b>Non-Operating Temperature</b>	-13° to 158°F (-25° to 70°C)
<b>Relative Humidity</b>	0-95% non-condensing
<b>Operating Altitude</b>	Up to 6,500 ft. (2,000m) without derating
Acoustical Noise (full load)	
<b>80kVA</b>	<67dB at 80-104°F (27-40°C) ambient <61dB below 80°F (27°C) ambient
<b>120kVA</b>	<69dB at 80-104°F (27-40°C) ambient <63dB below 80°F (27°C) ambient

OUTPUT	
<b>Voltage</b>	480VAC, 60Hz, 3-phase, 3-wire plus ground
<b>Voltage Adjustment Range</b>	±5%
<b>Voltage Regulation</b>	1% for balanced load 2% for 100% unbalanced load
<b>Dynamic Regulation</b>	±5% deviation for 100% load step ±1% for loss or return of AC input
<b>Transient Response Time</b>	Recover to ±5% of output voltage within 1/2 cycle
<b>Voltage Distortion</b>	For linear loads, 1% THD Less than 4% THD for 100% nonlinear loads without kVA/kW derating
<b>Phasing Balance</b>	120° ±0.5° for balanced load 120° ±1° for 100% unbalanced load
<b>Frequency Regulation</b>	±0.05% single module ±0.25% paralleled modules
<b>Load Power Factor Range</b>	0.5 lagging to 1.0 without derating
<b>Overload</b>	125% of full load for 10 minutes 150% for one minute, with true sinusoidal waveform
STANDARDS	
Listed to UL 1778 UPS standards, and CSA certified. Meets current requirements for safe high performance UPS operation.	

## External Battery Cabinet

Battery Manufacturer	Battery Type	Dimensions in. (mm)	Weight lb. (kg)	Qty. Battery Cabinets	Battery Time (minutes)				
					40kVA	60kVA	80kVA	100kVA	120kVA
C&D Technologies	UPS12-100MR	35.3x38.2x78.7 (897x970x2000)	1750 (794)	1	5	—	—	—	—
				2	17	9	5	—	—
	UPS12-150MR		1	12	7	—	—	—	
			2	33	20	13	9	7	
	UPS12-210MR		1	19	11	6	—	—	
			2	48	31	21	15	11	
Energysys	HX205	35.3x38.2x78.7 (897x970x2000)	2620 (1188)	1	19	11	7	—	—
				2	46	28	20	15	12

## Site Planning Data - 40-120kVA, 60Hz, 480VAC

UPS Rating		Voltage		AC Input			Battery		AC Output		Mechanical Data				
kVA	kW	Input	Output	Current (A)		Rec. OCPD	Nom. VDC	Max. Discharge	Current		Dimensions WxDxH, in. (mm)  (600 x 970 x 2000)	Weight lb. (kg)	Heat Dis. BTU/hr (kWH)	Cooling Air CFM (m <sup>3</sup> /hr)	
				Nom.	Max.				Nom.	OCPD					
40	36	480	480	48	66.8	90	480	98	48	70			1290 (585)	11,612 (3.4)	620 (1050)
60	54	480	480	72	100.2	125	480	146	72	110			1290 (585)	15,204 (4.5)	620 (1050)
80	72	480	480	96	133.6	175	480	195	96	150			1290 (585)	20,273 (5.9)	620 (1050)
100	90	480	480	120	167.1	225	480	244	120	175		1422 (645)	23,496 (6.9)	920 (1550)	
120	108	480	480	144	200.5	250	480	293	144	225		1422 (645)	28,196 (8.3)	920 (1550)	
<b>See Notes for Table (below):</b>				1	2,3,5,8,12	6	4	1,3,8,12	1,3,8,12	6	13	14	—	—	

## Notes for Table

- Nominal (Nom) current is based on full rated output load at nominal input voltage.
- Maximum (Max) current (140% of nominal) is short duration for battery recharge conditions and low input voltage.
- UPS input and bypass cables must be run in separate conduit from output cables.
- Nominal battery voltage is shown at 2.0 volts/cell per NEC 480-2.
- For Single Input units only.  
For Dual Input units, see “Electrical Data Specification Sheet, 40-120kVA UPS Module, Single or Dual Input Liebert NX - U3819100.”
- OCPD = Overcurrent Protection Device. Recommended AC input and AC output overcurrent protection represents 125% of nominal full load current (continuous) plus 100% of recharge current (non-continuous) per NEC 215.
- Minimum-sized grounding conductors to be per NEC 250-122. Parity-sized ground conductors are recommended. Neutral conductors to be sized for full capacity per NEC 310-15 (b)(4). References are per NEC 1999.
- Wiring requirements:
  - AC Input: 3-phase, 3-wire, plus ground
  - AC Output: 3-phase, 3-wire, plus ground
- All wiring is to be in accordance with national and local electric codes.
- Minimum access clearance is 3 ft. (0.9m) front and 8 in. (203mm) above the UPS.

## Notes for Table (continued)

- Top or bottom cable entry through removable access plates. Punch plate to suit conduit size, then replace.
- Control wiring and power wiring must be run in separate conduit.
- Dimensions and weights in table do not include external battery cabinet.

## Additional Notes

- Input and output wiring and breakers for a Liebert NX with Softscale technology should be sized for the maximum scalable capacity. For example, a 40kVA Liebert NX that is scalable to 80kVA should be installed with wiring and breakers rated for an 80kVA configuration.
- If site configuration includes a backup emergency generator, it is recommended that the engine generator set be properly sized and equipped for a UPS application. Generator options would typically include an isochronous governor (generator frequency regulation) and a UPS-compatible regulator (generator voltage regulation). Consult generator manufacturer for required generator options and sizing.
- If site configuration includes an automatic transfer switch, refer to Liebert Power Line titled “Criteria for Application of Automatic Transfer Switches (ATS) With Uninterruptible Power Supply (UPS) Systems,” publication 91K-PLT-48-02. It is also recommended that the transfer switch be equipped with auxiliary contacts for UPS “on generator” current limit. Consult transfer switch manufacturer for required transfer switch options and sizing.
- If site configuration requires an external isolated maintenance bypass circuit, it should be noted that utility AC input might not be in phase with the UPS AC output. Consult a Liebert sales representative or applications engineer.



© 2008 Liebert Corporation  
 All rights reserved throughout the world. Specifications subject to change without notice.  
 © Liebert is a registered trademark of Liebert Corporation.  
 All names referred to are trademarks or registered trademarks of their respective owners.  
 SL-25218\_REV0\_03-08

## Technical Support / Service

800-222-5877 (Outside U.S. 614-841-6755)  
 upstech@emersonnetworkpower.com  
 Web site: www.liebert.com

## United States

1050 Dearborn Drive  
 P.O. Box 29186  
 Columbus, OH 43229